# The Naval Surface Warfare Center

## World-Class Scientists, Engineers, and Facilities for the Current Navy, the Next Navy, and the Navy After Next

REAR ADM. MIKE MATHIS, USN

What is the Naval Surface Warfare Center? Why does the Department of the Navy (DoN) have a Surface Warfare Center, or other Warfare Centers for that matter? What do they do, why do they do it, and how do they do it?

The DoN technical community, drawn mainly from the ranks of the former laboratories and Systems Commands' field activities – now merged into Warfare Centers – is not well understood by many in the DoN. In fact, if you should ask many program managers to whom Warfare Centers provide assistance in acquisition matters; or Fleet units whose ships, aircraft, submarines, and command and control systems the Warfare Centers support, they will tell you they cannot exist without the technical capabilities Warfare Centers provide.

Unlike most operational and headquarters components in the Department of the Navy, Warfare Centers are technically focused and are funded through a Working Capital Fund. Partially for these reasons, they remain an enigma to many parts of the Department.

This article will attempt to reduce some of the mystery surrounding the DoN Warfare Centers by introducing you to the Naval Surface Warfare Center (NSWC). It will explain why NSWC exists and how it does business and discuss the Center leadership's innovative business thinking – an approach to managing the Center that has helped NSWC remain viable and available to the Fleet through a decade of dramatic cutbacks in defense spending.

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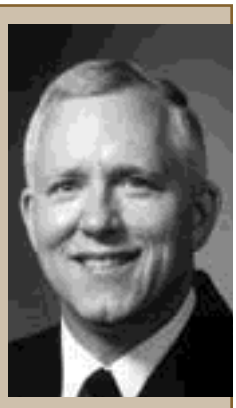

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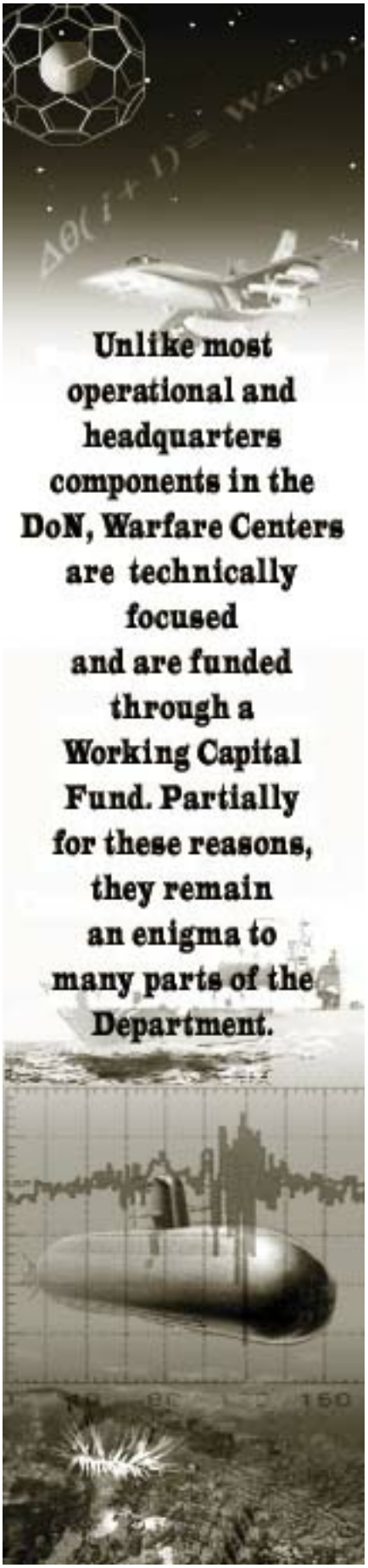
### Why Does NSWC Exist?

The policy of our country is to rely on the private sector to supply the Navy and Marine Corps and all armed forces with the systems they need to carry out their missions. The DoN, however, must be able to state what it needs in technical terms that the private sector can develop and build. The DoN must also be able to determine where to seek such capabilities from the private sector: in other words, it must know the technical turf of private industry. In today's era of Commercial Off-The-Shelf (COTS) technology, this is especially true. Moreover, given the competitive nature of the private sector, the DoN must be technically competent to know when a proper solution has been proposed or built by the private sector. That is not to say that the private sector does not have the best interests of the DoN at heart, but the private sector's principal customers and the DoN's principal customers are different: the former are stockholders, and the latter are the men and women of our fighting forces and the taxpayers of the United States.

The DoN needs interoperability in its systems, not only *within* the same fighting units (ships or aircraft, for example), but also *among* these units. Interoperability extends beyond the DoN to the Joint arena, and ultimately to allied and coalition forces. All this requires a strong technical community within the DoN, possessing not only knowledge of the systems themselves, but also the *interactions* among these systems. For this reason, we see a principal focus on *systems* within NSWC.

Hence, the DoN has Warfare Centers that exist to:




- Understand the technical dimensions of Naval problems.

- Be a technical peer of the private sector to enable the DoN to: 1) know where to go for solutions to these problems; and 2) know when a competent solution has been provided, including the ability to certify systems safe and effective.

- Be prepared to do what industry: 1) *will not do* because the work is not profitable (the primary objective of the private sector); 2) *cannot do* because the work requires extremely expensive or unique facilities; and 3) *should not do* because they are not prepared to accept the subsequent liability (for example, certifying systems safe and effective).

NSWC does all the preceding in support of five mission-related Product Areas: Ships and Ship Systems, Surface Ship Combat Systems, Navy Strategic Weapon Systems, Littoral Warfare Systems, and Ordnance. The Center's broad focus spans the cradle-to-grave life cycle of programs, systems, equipment, and materials. In short, NSWC supports the current Navy, the next Navy, and the Navy after next.

The aggregate of the work performed across NSWC: provides the intellectual basis and facilities to enable NSWC to carry out its reason for being; provides an economic base to achieve the economies of scale to perform such work at competitive rates; and provides a technical foundation and stewardship of an "intellectual insurance policy" while various acquisition reform initiatives are being tested out, such as Full Service Contracting, Performance Specifications, and COTS. This is especially important given the potential implications of some of these policies to interoperability.

## Sustaining an In-House Capability

How does NSWC develop and sustain the breadth and depth of capabilities to meet the expectations of the Department of the Navy? Over the years, the Center has found that the most effective way to do this is to *perform hands-on technical work*. Reading about developing and sustaining capabilities, learning about it in the classroom, or watching (overseeing) others is insufficient to develop and sustain such capabilities while simultaneously anticipating those needed by the DoN in the future. Hence, NSWC performs technical work for the acquisition community – the Fleet.

In addition, sustaining an in-house capability requires sufficient workload to permit products and services to be provided at *affordable rates*. This relates to the way in which Warfare Centers do business within the Navy Working Capital Fund (NWCF). Every direct labor hour worked is charged at a rate calculated to cover all operating expenses. The objective in each operating year is to balance revenue taken in through direct work with total costs such that the Center's Net Operating Result (akin to net profit) is zero. Operating gains and losses are made up in future rates charged to customers. In this way, Warfare Centers are incentivized to keep operating expenses low and thereby maintain competitive rates.

Thus, the very nature of the NWCF causes the Center to behave much like a business. For example, a program manager needing specific work done, negotiates a task Statement of Work to be performed during a specified period for a specific amount. The Warfare Center arrives at that amount by calculating the amount of labor, materials, and other costs necessary to perform the work. When the task is accepted by the Warfare Center, it becomes a "contract" between the program manager and the Warfare Center. Progress bills and reports are made by the Warfare Center to the program manager until the work is completed.

As in any business, Center leadership needs to adopt *innovative business solutions* aimed at lowering costs while ensuring that intellectual capital and facilities for the future are sustained. The remainder of this article will share some of NSWC's innovative business thinking.

## A Systems Approach to Business Thinking

Maintaining the technical relevance and economic viability of a complex Naval enterprise requires leaders that possess a high degree of business savvy to complement their technical know-how; and it requires effective tools be developed, made available, and used to guide decision making.

### Core Equities

NSWC has devoted significant management attention to business planning. The primary focus of such planning is to ensure the Center is fiscally sound and investments are made in the proper areas to ensure development and sustainment of Core Equities – the highly skilled technical workforce and specialized world-class facilities that comprise the Center's technical capabilities. As warfare systems obsolesce, related technical capabilities are phased out.

### Business Ethic

The guiding precepts of the NSWC Business Plan are expressed as a *Business Ethic*. NSWC institutionalized the Business Ethic to raise the level of importance of fiscal discipline. For example, the Business Ethic set a policy to absorb cost increases within NSWC through increased efficiencies rather than pass them on to the Fleet via increased rates. The principles invoked by the Business Ethic guide not only NSWC's day-to-day activities, but also its future investment decisions. For example, investments made by one of NSWC's six operating Divisions are evaluated in terms of their impact on the entire Center to ensure corporate decisions are made concerning investments in people, facilities, and tools.

### Audits, Performance Targets

*Annual overhead audits* are conducted to better understand spending requirements before overhead dollars are spent. NSWC assigns its operating Divisions (Carderock, Dahlgren, Port Hueneme, Crane, Indian Head, and Corona) specific *performance targets* controlling rate growth and net operating results (NOR), while at the same time ensuring appropriate investments in maintenance, training, and compensation are being made.

NSWC is studying the economic viability of *privatizing utilities*. The Center has assessed the marketplace and established market interest, and is now focused on determining market value and conducting an economic analysis, assisted by private sector experts in this area.

### Product Area Coordinator

NSWC established a *Product Area Coordinator* for each of its five Product Areas. The Product Area Coordinators act as if they were senior vice presidents of a corporation, charged with ensuring the stewardship of each of the Core Equities that fall within the Product Area. Their charter is to develop a set of investment recommendations that optimize at the corporate level, and to serve as advocates for the Product Area. This provides the mechanism to: reshape the Center; provide a focus for technical competencies to support the Fleet and other customers; and resolve corporate technical issues dealing with NSWC's capabilities.

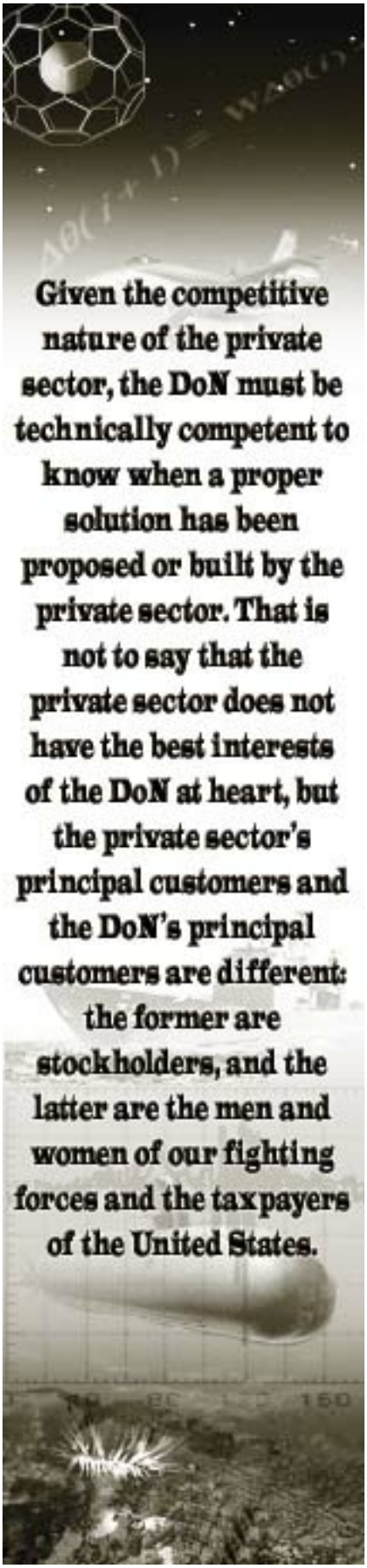
### Technical Assessment, Grand Challenges

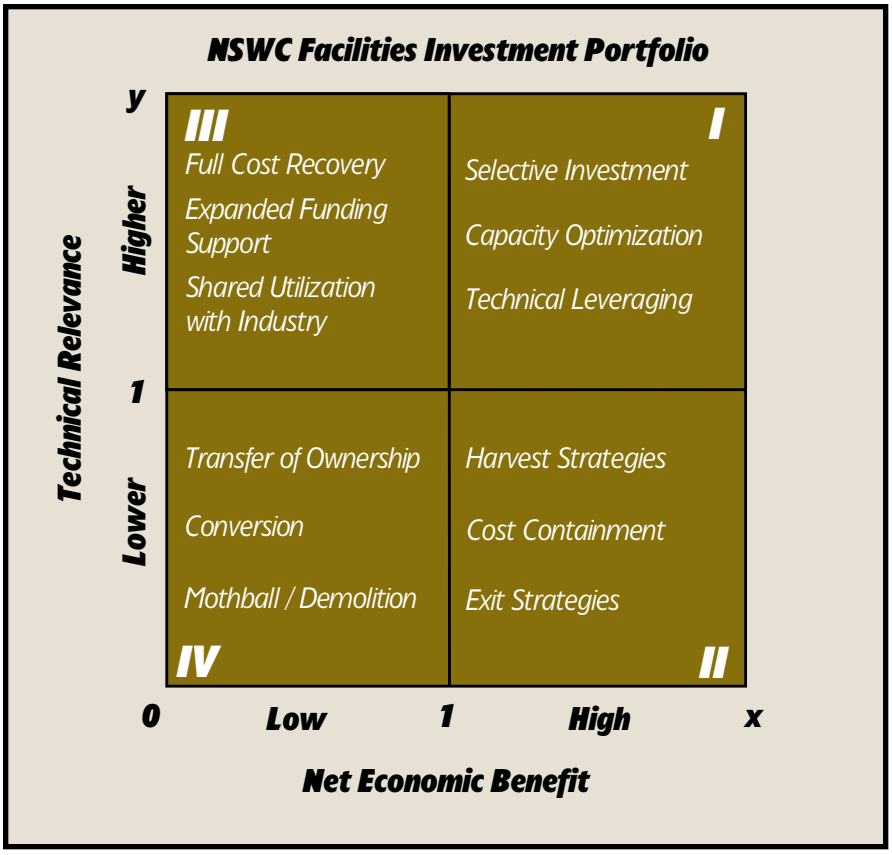
The NSWC Product Area Coordinators conduct a comprehensive *Technical Assessment* of NSWC Core Equities every two years to determine the overall health of the Center's capabilities and better understand which capabilities will be needed to meet DoN's *Grand Challenges* – the tough technical problems where the Navy and Marine Corps will need NSWC's help to develop viable solutions.

Future investments will be based on need and rooted in the Core Equities that best support Grand Challenges. Investment strategies will address the two basic building blocks of NSWC's Core Equities: workforce and facilities.

#### Workforce

The *Workforce Reconstitution Strategy* is a product of the Technical Assessment and focuses on how to rebalance and reshape the workforce to meet current






and future needs. A comprehensive strategy, it addresses the nurturing of critical skills to support both legacy systems and emerging systems in the Fleet. It also includes new skills that must be developed to support Grand Challenges and future capabilities envisioned in the Science and Technology Investment Portfolio.

Significant aspects of the strategy include such areas as recruitment, training and development, attrition, and rewards. As a catalyst, the Workforce Reconstitution Strategy acts to ensure that the Center develops future leaders who will take NSWC into the future and ensure its continued technical relevance and viability.

### Facilities

The final element of the NSWC investment approach addresses a *Facilities Reconstitution Strategy*. As in the workforce, the objective here is to make investment decisions that optimize at the corporate level and meet future needs. Transitioning infrastructure management to an enterprise focus will provide greater management insight, and create synergy among the individual Division facility planning initiatives. It will enable the Center to save money, shrink footprint, and preserve critical facilities needed by the Fleet.

## An Innovative Facilities Investment Portfolio

The approach NSWC has taken in establishing an integrated Facilities Reconstitution Strategy involves the application of commercial portfolio management techniques. The chart shown above represents a facility-specific derivative of the Boston Consulting Group Strategic Planning Matrix that is often applied in corporate decision making. As shown, the *Facilities Investment Portfolio* framework enables the Center to understand the revenue-generating power of its facilities and their technical relevance to the Navy.

### Net Economic Benefit (NEB)

The horizontal axis of the two-by-two matrix is defined by the *Net Economic Benefit (NEB)* metric that represents the ratio of revenue received for work performed in a technical facility vs. the annual operating cost to support that facility. NSWC procured the services of an established accounting firm, KPMG, to assist in determining NEB for its technical facilities.

### Technical Relevance

The vertical axis is defined by a similar metric of *Technical Relevance (TR)* that measures the relative importance/priority of the facilities' technical contribution to the DoN's Grand Challenges discussed previously. Here, NSWC adapted a model developed by the RAND Corporation to determine the technical relevance of its facilities. Combined, the intersection of these two axes creates four quadrants for classifying NSWC technical facilities. As the chart depicts, the investment strategy is guided by the quadrant in which the facility is plotted.

## DoN – NSWC's Primary Customer

The Naval Surface Warfare Center, like its sister activities in other warfare areas, exists to serve the interests of the Department of the Navy as its primary customer. Its focus is on the technical dimensions of warfare systems and the associated technical knowledge that enables DoN's leadership to: 1) know where to go for solutions to the Navy's operational needs; and 2) know when a competent solution has been provided. As such, the Center must be vigilant in its stewardship of the Core Capabilities to perform this necessary governmental function.

Innovative business practices are a part of this vigilance, including those dealing with facilities. Such an approach will ensure NSWC Core Equities continue to be comprised of the world-class scientists, engineers, and facilities needed to support the current Navy, the next Navy, and the Navy after next.

**Editor's Note**: The author welcomes questions or comments on this article. Contact *LashFC@navsea.navy.mil*.